Sample DNR Permit Application Letter

Jack Riessen, Supervisor
Floodplain Permits Section
Iowa Department of Natural Resources
Wallace State Office Building
900 E. Grand
Des Moines, IA 50319

Dear Mr. Riessen:

Enclosed find an application for a Floodplain Development Permit for the Iowa Department of Transportation. The application is for a channel change on for Beaver Creek in Hardin County associated with the relocated US 20 highway project.

The submittal includes the following:

1. Completed application form 36
2. Vicinity map showing location of project and adjacent landowners
3. Typical existing channel cross section
4. Typical proposed channel cross section
5. Channel change plan and profile, including a seal and certification statement by a licensed professional engineer
6. Road plan and profile sheet in the vicinity of channel change

Note that a request for variance to IAC 567-72.2(1)b is included with the project.

If you have questions related to the application or need additional information, please contact our office or Dave Claman in IDOT's Preliminary Bridge Design Section.

Sincerely,

John Engineer, P.E.
ABC Consultants

Sample DNR Application Form 36

JOINT APPLICATION FORM

ITEMS 1 AND 2 FOR AGENCY USE

1. Application Number	**2. Date Received**

3. AND 4. (SEE SPECIAL INSTRUCTIONS) NAME, MAILING ADRESS, AND TELEPHONE NUMBERS

3. Applicant Sandra Q. Larson, Bridge Engr.	**4. Authorized Agent (if any)**	**Other**
Iowa Department of Transportation	ABC Consultants, Inc.	
800 Lincoln Way	123 Main Street	
Ames, IA 50010	Ames, IA 50010	
Phone (515) 239-1206	**Phone** (291) 291-1111	**Phone** ( )

5. PROJECT DESCRIPTION AND REMARKS:

The proposed US 20 highway relocation includes a channel change of Beaver Creek at approximately Sta. 201 (metric). The channel change reduction is greater than 25% for a drainage area of 22 square miles. The proposed channel change has a reduction in the original length of the existing channel of 16% through the proposed project ROW limits.

6. IMMEDIATE AND ADJOINING PROPERTY OWNERS:

Lorraine Mueller, RR 1, Box 100, Iowa Falls, IA 50126, ph. 515-646-2900
Robert Hatch, 177 P Ave., Iowa Falls, IA 50126, ph. 515-646-1231

7. PROJECT LOCATION

STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION		**LEGAL DESCR.**	**QUARTER**	**SECTION**	**T'SHIP**	**RANGE**
Proposed relocation of US 20			SE	7	88N	20W
IN OR NEAR CITY OR TOWN		**WATERWAY**				**RIVER MILE**
1 mile NW of Owasa		Beaver Creek				
COUNTY	**STATE** / **ZIP CODE**					
Hardin	IA 50126					

8. Date activity is proposed to commence? April 2000 **Date Activity is expected to be completed?** April 2001

9. Is any portion of the activity for which authorization is sought now complete? **Yes** ____ X **No** ____ **If answer is "Yes" give reasons in the Project Description and Remarks section. List month and year the activity was completed Indicate the existing work on drawings.** _____

10. List all approvals or certification and denials received from other federal, interstate, state, or local agencies for structures, construction, discharges or other activities described in this application.

ISSUING AGENCY	**TYPE APPROVAL**	**IDENTIFICATION NO.**	**DATE OF APPLICATION**	**DATE OF APPROVAL**	**DATE OF DENIAL**
Corps of Engineers	404		4/24/00	Pending	

11. CONSENT TO ENTER PROPERTY LISTED IN PART 7 IS GRANTED:				
YES		**NO**	X	

12. APPLICATION VERIFICATION (SEE SPECIAL INSTRUCTIONS)

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

(DOT or Consultant Signature here) _____

Signature of Applicant or Authorized Agent **Date**

_____ _____

Signature of Applicant or Authorized Agent **Date**

IOWA DEPARTMENT OF NATURAL RESOURCES--ATTENTION: FLOODPLAIN PERMITS SECTION--SEE INSTRUCTIONS FOR ADDRESS
DNR FORM 36

JOINT APPLICATION FORM

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3. Applicant Sandra Q. Larson, Bridge Engineer	**4. Authorized Agent (if any)**	**Other**
Iowa Department of Transportation		
800 Lincoln Way		
Ames, IA 50010		
Phone (515) 239-1206	**Phone** ( )	**Phone** ( )

5. PROJECT DESCRIPTION AND REMARKS:

6. IMMEDIATE AND ADJOINING PROPERTY OWNERS:

7. PROJECT LOCATION

STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION			**LEGAL DESCR.**	**QUARTER**	**SECT.**	**T'SHIP**	**RANGE**
IN OR NEAR CITY OR TOWN							
COUNTY	**STATE** IA	**ZIP CODE**	**WATERWAY**				**RIVER MILE**

8. Date activity is proposed to commence? **Date Activity is expected to be completed?**

9. Is any portion of the activity for which authorization is sought now complete? **Yes** ____ **No** ____ **If answer is "Yes", give reasons in the Project Description and Remarks section. List month and year the activity was completed. Indicate the existing work on drawings.** _____

10. List all approvals or certification and denials received from other federal, interstate, state, or local agencies for structures, construction, discharges or other activities described in this application.

ISSUING AGENCY	**TYPE APPROVAL**	**IDENTIFICATION NO.**	**DATE OF APPLICATION**	**DATE OF APPROVAL**	**DATE OF DENIAL**

11. CONSENT TO ENTER PROPERTY LISTED IN PART 7 IS GRANTED: YES ____ **NO** ____

12. APPLICATION VERIFICATION (SEE SPECIAL INSTRUCTIONS)

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

_____ _____

Signature of Applicant or Authorized Agent **Date**

_____ _____

Signature of Applicant or Authorized Agent **Date**

IOWA DEPARTMENT OF NATURAL RESOURCES--ATTENTION: FLOODPLAIN PERMITS SECTION--SEE INSTRUCTIONS FOR ADDRESS
DNR FORM 36

Meandered Streams

Iowa Department of Natural Resources Construction Permits are required for work on or over meandered streams. (This is a different permit than a Floodplain Development Permit.) The term "meandered stream" for this permit is a legal description where the State of Iowa owns the stream bed and banks of certain reaches of rivers. A meandered stream is one which at the time of the original government survey was so surveyed as to mark, plat and compute acreage of adjacent fractional sections. DNR is responsible for this state-owned land and therefore issues a Construction Permit. The following is a list of the descriptions of the limits of these rivers in the state of Iowa.

1. Des Moines River. From Mississippi River to the junction of the east and west branches. The west branch to west line T95N, R32W, Palo Alto County, due south of Emmetsburg. The east branch to north line T95N, R29W, Kossuth County, near the north edge of Algona.

2. Iowa River. From Mississippi River to west line T81N, R11W, Iowa County, due north of Ladora.

3. Cedar River. From Iowa River to west line T89N, R13W, Black Hawk County, at the east edge of Cedar Falls.

4. Raccoon River. From Des Moines River to west line of Polk County.

5. Wapsipinicon River. From Mississippi River to west line T86N, R6W, Linn County northwest of Central City.

6. Maquoketa River. From Mississippi River to west line T84N, R3E Jackson County, due north of Maquoketa.

7. Skunk River. From Mississippi River to north line of Jefferson County, at the southwest edge of Coppock.

8. Turkey River. From Mississippi River to west line T95N, R7W, Fayette County, northwest of Clermont.

9. Nishnabotna River. From Missouri River to north line T67N, R42W, Fremont County, northeast of Hamburg.

10. Upper Iowa River. From Mississippi River to west line Section 28, T100N, R4W, Allamakee County, about two and one-half miles upstream from its mouth.

11. Little Maquoketa River. From Mississippi River to west line Section 35, T90N, R2E, Dubuque County, about one mile upstream from its mouth.

12. Mississippi River, Missouri River, Big Sioux River.

Instructions for Completing
Risk Assessment Form for
Bridges (Culverts) Over Waterways

This form needs to be completed only for those river bridges needing FHWA approval.

Hydrologic Evaluation

A. Check USGS Water Resources Data
B. Check Flood Insurance Studies, USGS reports, Corps of Engineer projects, etc.
C. Estimate backwater for each. (Method used is optional.) The backwater estimates should be based on the recommended structure. Method used to compute discharge is normally USGS Report 87-4132 or gaging station data if a gaging station is near the site.
D. For example, DNR Floodplain Development Permit, or Corps 404 Permit.

Property Related Evaluation

A. Low damage potential - No buildings.
   Moderate damage potential - Outbuildings.
   High damage potential - Residential/industrial.
B. For Flood Insurance Studies, all the information should be in the study. Call DNR for additional information.

Environmental Considerations

A. Check the Concept Statement or the Environmental Assessment.

Highway and Bridge (Culvert) Related Evaluation

A. Check appropriate features if any.
B. Identify recurrence interval at overtopping (proposed roadgrade) if less than 500 year.
   Length of overtopping _____ m at Q_{50}.

Miscellaneous Comments

A - E. Self Explanatory.
F. Sample comments:
   Bank stabilization may be required in the future - not recommended at this time.
   Riprap on spur dikes not recommended on this project.

Traffic Related Evaluations

A. Self explanatory.
B. Self explanatory.
C. Self explanatory.
D. Detour - If the road (structure) washed, what is the length of the posted detour route?

Present Facility

A. Self explanatory.
B. At what discharge and recurrence interval does the existing road overtop.
C. Self explanatory. Most streams draining less than 1300 sq. kilometers are subject to flash flooding.

Alternates

A. Self explanatory.
B. Self explanatory.
Discussion: If other alternatives were considered (e.g., longer bridge or shorter bridge or culvert), state in a general way and give reason for rejection.

Examples: A culvert was considered but was rejected because of drift potential.
A longer bridge was considered but was not necessary hydraulically and was too costly.

C. For most sites, further analysis would not be necessary.

Form 621012
5-95

Iowa Department of Transportation
Office of Bridges and Structures

Sample

RISK ASSESSMENT FOR BRIDGES(CULVERTS) OVER WATERWAYS
(For 6.1m Span and Longer Structures)

LOCATION

County Bremer Civil Twp. Jackson Sec. 35 Twp. 91N Range 14W
Over Cedar River Hwy. No. US 218
Project No. F-218-8(20)--20-09 Design Number 189 FHWA No. _____
Assessment Prepared by B. Barrett Date 08/01/88

HYDROLOGIC EVALUATION

A. Nearest gaging station on this stream (None ____) At Janesville, 2000' downstream
B. Flood studies available on this stream None
C. Flood Data
Q_{10} 570 m³/sec Est. Bkwtr. 0 m Q_{25} 760 m³/sec Est. Bkwtr. 0 m
Q_{50} 1030 m³/sec Est. Bkwtr. 0.1 m Q_{100} 1160 m³/sec Est. Bkwtr. 0.2 m
Q_{500} 1390 m³/sec or Overtopping — m³/sec *(whichever is lower)*
Drainage area 4300 km² Method used to compute Q Stream gage records
D. Does the crossing require outside agency approval? ☒ Yes ☐ No
List Agencies DNR Flood Plain Permit; Corps 404 Permit

PROPERTY RELATED EVALUATIONS

A. Upstream damage potential: ☒ Low ☐ Moderate ☐ High
List buildings in flood plain None Location _____
Floor elevation _____ Upstream land use Timber Anticipate any change? ☐ Yes ☒ No
B. Any flood insurance studies? ☒ Yes ☐ No
Base flood elevation *(100 year)* 270.72 m Regulatory floodway width 210 m *(As noted in FIS)*
Comments: _____

ENVIRONMENTAL CONSIDERATIONS

A. List commitments in environmental documents which affect hydraulic design (None X)

HIGHWAY AND BRIDGE (CULVERT) RELATED EVALUATIONS

A. Note any outside features which might affect stage, discharge or frequency.
☒ Levees ☐ Aggradation/degradation ☐ Reservoirs ☐ Diversions
☐ Drainage Dist. ☐ Navigation ☐ Backwater from another source
☐ Other _____
Explanation: Levee on east bank downstream of proposed structure.
B. Proposed roadway overflow section. (None X) Length _____ m Elev. _____ m
Recurrence interval _____ year
Comments: Proposed roadgrade is above the Q_{500} elevation.

MISCELLANEOUS COMMENTS

A. Is there unusual scour potential? ☐ Yes ☒ No Anticipated scour elev. 261 m

B. Are banks stable? ☒ Yes ☐ No Protection needed? ☐ Yes ☐ No

C. Are spur dikes needed? ☐ Yes ☒ No

D. Does stream carry appreciable amount of ice? ☒ Yes ☐ No

E. Does stream carry appreciable amount of large driftwood? ☒ Yes ☐ No

F. Comments: Scour may occur to a hard limestone layer at elev. 261 m.

TRAFFIC RELATED EVALUATIONS

A. Present year 1992 Traffic count 7100 VPD % Trucks 8%

B. Design year 2012 Traffic count 8650 VPD % Trucks 8%

C. Emergency route? ☒ Yes ☐ No School bus route? ☒ Yes ☐ No Mail route? ☒ Yes ☐ No

D. Detour available? ☒ Yes ☐ No Length of detour 9 km

Comments:

PRESENT FACILITY

A. Low roadway elevation Not applicable m

B. Q overtopping — m^3/sec Recurrence interval — year *(if less than 500-year)*

C. Is flash flooding likely? ☐ Yes ☐ No

Comments: Proposed alignment is 0.8 mile upstream of present alignment.

ALTERNATIVES

A. Recommended design Dual 205 m X 12 m PC Beam Bridge

Low superstructure elevation *(bridge)* 273.1 m Top opening elevation *(culvert)* — m

Low roadway grade elevation 272.2 m

Bridge waterway opening *(at Q_{50})* 740 m^2 Culvert opening — m^2

B. Were other hydraulic alternates considered? ☒ Yes ☐ No

Discussion: The recommended design is considered to be the minimum acceptable structure at this site.

C. Is this assessment commensurate with the risks identified? (☒ Yes ☐ No) or is further analysis needed? (☐ Yes ☒ No)

Form 621004M
95

Iowa Department of Transportation

FIELD NOTES FOR BRIDGES AND LARGE CULVERTS
(For 6.1m Span and Longer Structures)
PRIMARY ROAD SYSTEM

Sample

LOCATION

1. County Allamakee Civil Twp. Lansing Sec. 12 Twp. 99N Range 4W
2. Over (River, Cr., Dr. Ditch) Enterprise Creek Highway No. Ia. 26
3. Proj. No. BRF-26-1(6)--38-03 Sta. Pres. Struct. 60+07.120 Aerial Map No.
Sta. Prop. Struct. 60+10.580

GENERAL DATA (FIELD)

4. Drainage Area 0.29 km² Character Very hilly Approx. length and width 6 km X 2 km
5. Extreme highwater: Date of occurence unknown Information from Edward Smith
(Elev. near site 192.54 m Location at site, upstream side) (Elev. upstream m
Location) (Elev. downstream m Location)
6. Typical highwater: Elev. 192 ± m Occurs every 5 Years. Date of last occurence 1986
7. Average low water: (Elev. at site 191.24 m Average streambed 191.05 m) (Water elev. 191.24 m on date of survey 10/30/91)
(Water elev. 193.03 m upstream 400 m) (Water elev. 190.24 m downstream 400 m) Fall in stream 3.5 mm/m
8. List buildings in flood plain None Location — Floor Elev. — m
9. Upstream Land Use Timber, cultivated Anticipate any Change? No
10. Is stream deepening or filling? No Approx. amount per year —
11. Is stream widening? No (Show direction, rate and amount)
12. Does stream carry appreciable amount of ice? No Elev. of high ice — m
13. Does stream carry appreciable amount of large driftwood? No.
14. Bench Mark No. 12 "A", Sta 59+87.2, 3.96 m left, Found (x) on handrail, SW Corner Bridge, El. 197.096 m.

PRESENT OR OLD STRUCTURE

15. Superstructure: Type Conc. wings & rail, steel I-beam Skew angle 45°
16. Substructure: Type Conc. abutments & piers
17. Span lengths 45.72 total (13.72, 18.29, 13.72) m Roadway width 7.2 m Type of floor Conc.
18. Culvert: Span — m Ht. — m Length B-B Ppts. — m Flowline Lt. — m Rt. — m
19. Grade elev. 195.596 m Date built 1928 IDOT Design No. 228
20. Condition of superstructure Fair
21. Condition of substructure Poor
22. Remarks:

PROPOSED STRUCTURE (OFFICE)

23. Superstructure: Type 52.5 m X 12.m PC Beam Bridge Skew angle 45
24. Substructure: Type P10A Piers, stub abutments
25. Span lengths (Bridge): 20.75, 21.00, 10.75 m Culvert B-B Ppts. — m
26. Culvert: Span — m Ht. — m Flowline Lt. — m Rt. — m Length Lt. — m Rt. — m
27. Roadway width 12 m Type of floor Conc Class of loading HS20
28. Type of railing Conc. Type of curb
29. Grade elev. 195.87 m Abut. footing elev. 193.24 m Pier footing elev. NA m
30. Length and type of pilings: Abuts. Piers
31. Design highwater: Elev. 190.6 m Frequency 50 yr. Area 43 m² Discharge 85 m³/s
32. What provision is made for overflow? None
33. Can channel be cleared to provide more waterway? Yes Are wing dikes to be provided? No
34. Is excessive local scour probable? No Probable max. depth of scour below streambed 189 ± m
35. Disposition of existing structure Remove
36. 1994 ADT = 1160 VPD
37. Remarks: To be built by staged construction

County Allamakee
Proj. No. BRF-26-1(6)--38-03
File No. 28211 PIN 91-03-010-1
Design No. 1093 Maint. No. 0305.2.5026

Field Notes by AB Smith Date Oct 91
Title Survey Party Chief

(over)

VALLEY CROSS SECTION DATA

The submittal of a bridge type structure will include a right angle valley section. This section should be taken downstream from the crossing. It shall be ntoed whether it is an average section or a control section. Enough ground shots will be taken to outline the valley to an elevation well above extreme highwater. Special care will be taken to accurately outline the main channel. Each shot should be identified; that is (FP) flood plain, (TB) top of bank, (ES) edge of stream, etc. Mannings equation roughness factors will be assigned each shot. Include site photos with this information.

Remarks: Located 30 m downstream, normal to channel and valley.

Distance (meters)	Elevation (meters)	(N) Roughness	Remarks
0	198.12	0.080	FP
3	193.27	↓	↓
79	191.90	↓	↓
122	191.72	0.040	TB
125	190.93	↓	
128	191.96	0.070	TB
155	196.29	↓	FP

Distance (meters)	Elevation (meters)	(N) Roughness	Remarks

PLAT OF DRAINAGE AREA

Remarks:

Give additional information by reference to marginal number on reverse side of this sheet.

Marginal No.	
5	Ext. highwater info: Mr. Edward Smith, resident of this area, said the highest he has ever seen highwater was approx. 1.5 m above abutment at north end of bridge. This elevation of 192.54 m matches that of as-built plans' highwater elevation.

IMPORTANT NOTE

The information given on this form must in all cases be supplemented by complete plat and profile of the site, drawn to a convenient scale on a separate sheet.

The information as shown on this form is essential and must be supplied in detail before the plans can be prepared or approved. It will be necessary to return this form for correction unless the data supplied is complete.